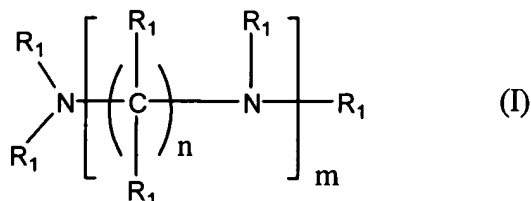


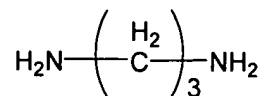
What is claimed is:

1. A method of removing phosphate from an animal comprising administering an effective amount of a crosslinked amine polymer, wherein said polymer comprises an amine of formula I

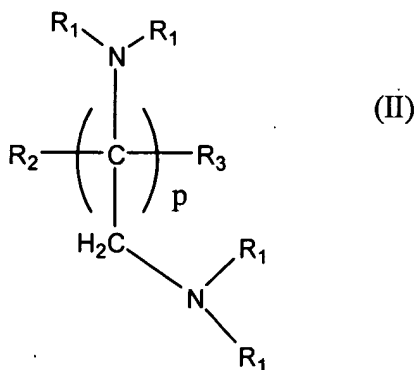


wherein each n, independently, is equal to or greater than 3, m is equal to or greater than 1, and each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group; and said amine is crosslinked with a crosslinking agent.

2. The method as recited in claim 1 wherein said amine is:



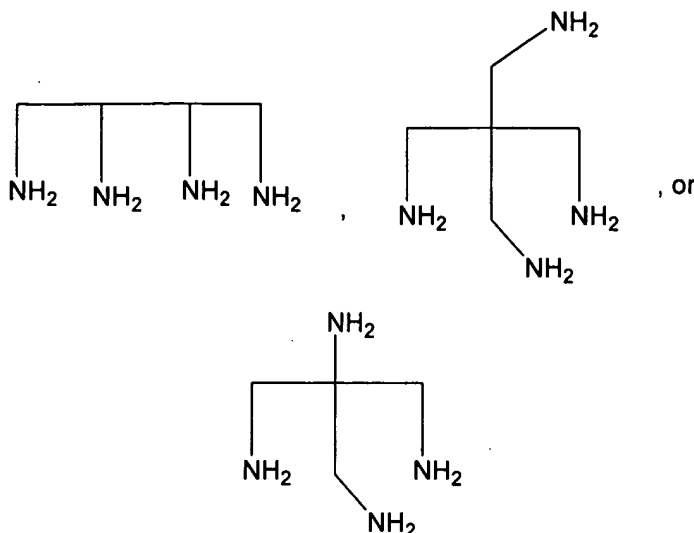
3. The method as recited in claim 1 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.
4. A method of removing phosphate from an animal comprising administering an effective amount of a crosslinked amine polymer, wherein said polymer comprises an amine of formula II



wherein p is 1, 2, 3, or 4; each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group; and R<sub>2</sub> and R<sub>3</sub>, each independently, are H or optionally substituted alkyl

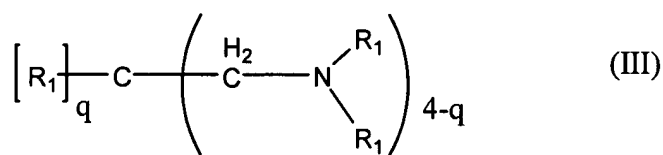
or aryl, with the proviso that when  $p=1$ , both  $R_2$  and  $R_3$  are not H and when  $p=2, 3$ , or  $4$ ,  $R_2$  and  $R_3$  are H, alkyl or  $-C(R_1)_2-R_4-N(R_1)_2$ ,  $R_4$  being either a bond or methylene and said amine is crosslinked with a crosslinking agent.

5. The method as recited in claim 4 wherein said amine is at least one of:



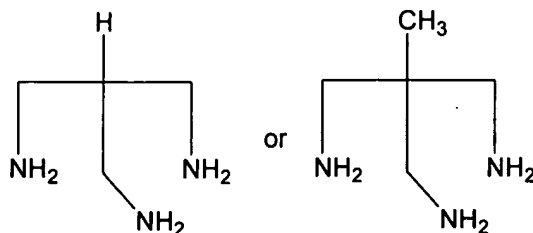
6. The method as recited in claim 4 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

7. A method of removing phosphate from an animal comprising administering an effective amount of a crosslinked amine polymer, wherein said polymer comprises an amine of formula III



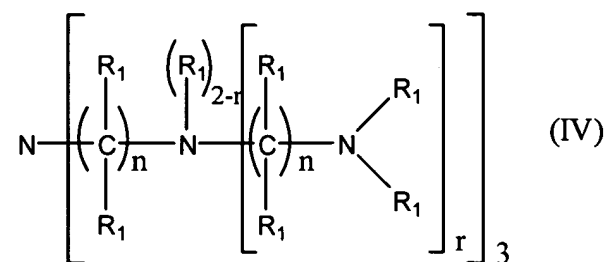
wherein  $q$  is 0, 1, or 2 and each  $R_1$ , independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring  $R_1$  to form an optionally substituted alicyclic, aromatic, or heterocyclic group and said amine is crosslinked with a crosslinking agent.

8. The method as recited in claim 7 wherein said amine is



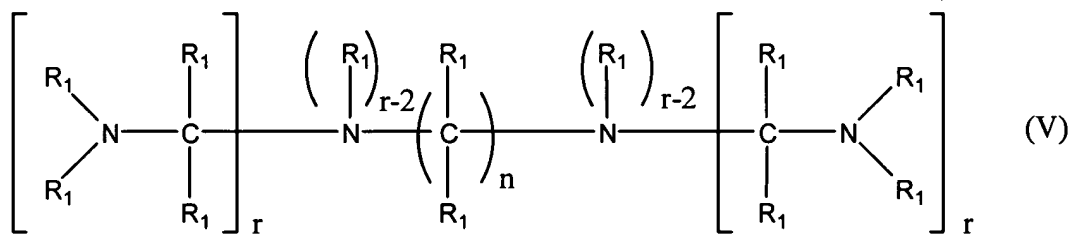
9. The method as recited in claim 7 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

10. A method of removing phosphate from an animal comprising administering an effective amount of a crosslinked amine polymer, wherein said polymer comprises an amine of formula IV



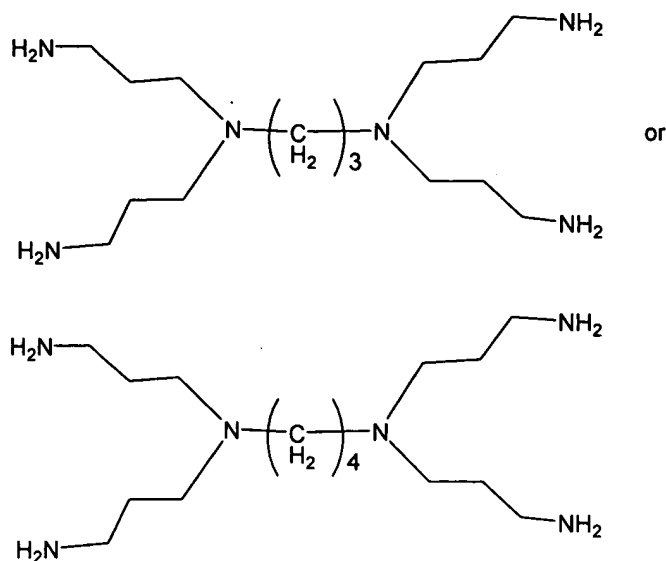
wherein each n, independently, is equal to or greater than 3; each r, independently, is 0, 1, or 2; and each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group and said amine is crosslinked with a crosslinking agent.

11. A method of removing phosphate from an animal comprising administering an effective amount of a crosslinked amine polymer, wherein said polymer comprises an amine of formula V



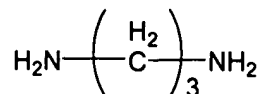
wherein each n, independently, is equal to or greater than 3; each r, independently, is 0, 1, or 2; and each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group and said amine is crosslinked with a crosslinking agent.

12. The method as recited in claim 11 wherein said amine is



13. The method as recited in claim 11 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.
14. The method as recited in claim 1, 4, 7, 10, or 11 wherein said animal is afflicted with at least one disease selected from hyperphosphatemia, hypocalcemia, hyperthyroidism, depressed renal synthesis of calcitriol, tetany due to hypocalcemia, renal insufficiency, ectopic calcification in soft tissues, and ESRD.
15. The method as recited in claim 1, 4, 7, 10, or 11 wherein said animal is a human.
16. The method as recited in claim 1, 4, 7, 10, or 11 wherein said crosslinked amine polymer has a phosphate binding capacity of about 1 to about 6 mmol/gr.
17. The method as recited in claim 1, 4, 7, 10, or 11 wherein said phosphate is removed from a gastrointestinal tract.
18. The method as recited in claim 1, 4, 7, 10, or 11 wherein said administration is oral.
19. The method as recited in claim 1, 4, 7, 10, or 11 wherein said polymer is co-administered with at least one of proton pump inhibitor, calcimimetic, vitamin D and analogs thereof, or phosphate binder.
20. The method as recited in claim 19 wherein the phosphate binder is at least one of aluminum carbonate, calcium carbonate, calcium acetate, lanthanum carbonate, or sevelamer hydrochloride.

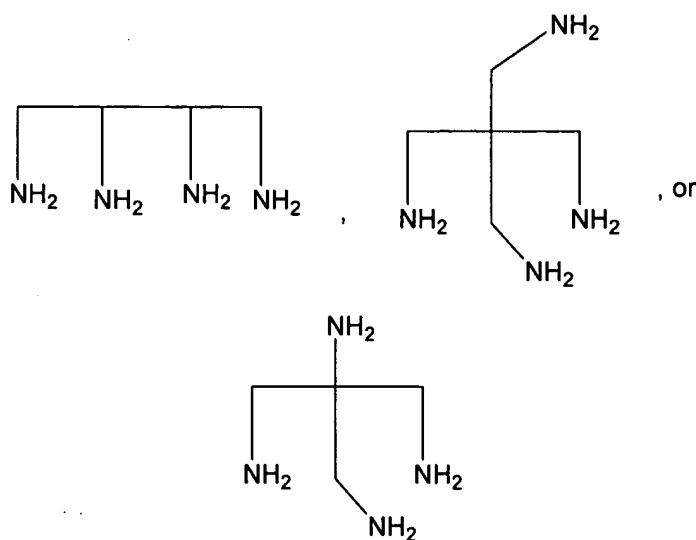
21. A polymeric composition comprising a crosslinked amine polymer, wherein said polymer comprises an amine, said amine being



and said polymer is crosslinked with a crosslinking agent.

22. The polymeric composition as recited in claim 21 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

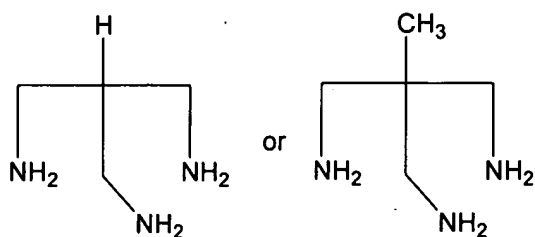
23. A polymeric composition comprising a crosslinked amine polymer, wherein said polymer comprises an amine, said amine being at least one of



and said amine is crosslinked with a crosslinking agent.

24. The polymeric composition as recited in claim 23 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

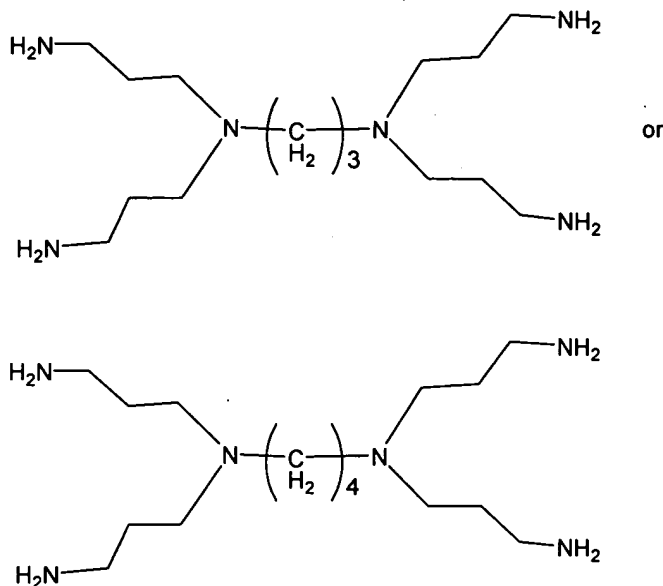
25. A polymeric composition comprising a crosslinked amine polymer, wherein said polymer comprises an amine, said amine being at least one of



and said amine is crosslinked with a crosslinking agent.

26. The polymeric composition as recited in claim 25 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

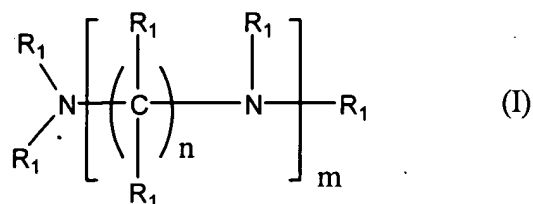
27. A polymeric composition comprising a crosslinked amine polymer, wherein said polymer comprises an amine, said amine being at least one of



and said polymer is crosslinked with a crosslinking agent.

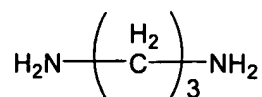
28. The polymeric composition as recited in claim 27 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

29. A pharmaceutical composition comprising a crosslinked amine polymer and a pharmaceutically acceptable carrier, wherein said polymer comprises an amine of formula I:



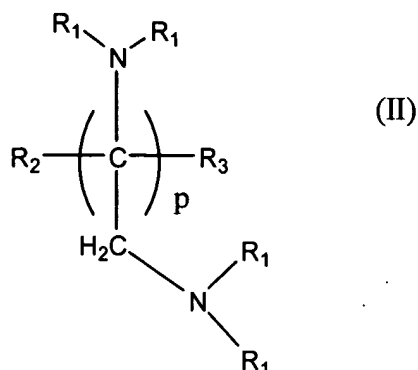
wherein each n, independently, is equal to or greater than 3, m is equal to or greater than 1, and each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group and said amine is crosslinked with a crosslinking agent.

30. The pharmaceutical composition as recited in claim 29 wherein said amine is:



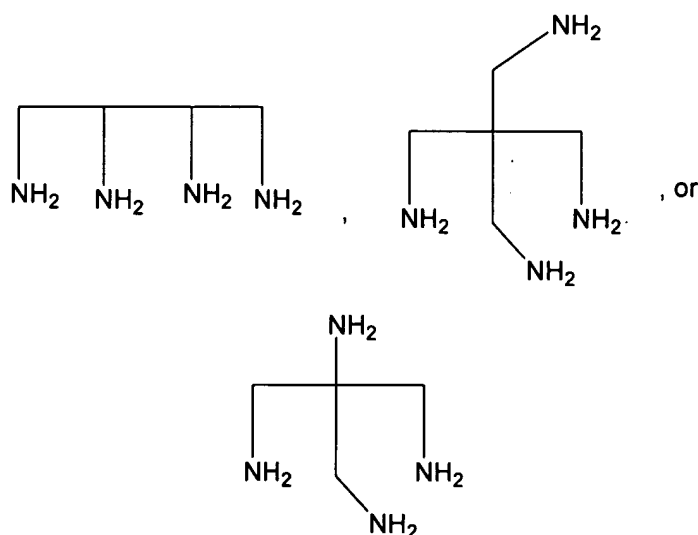
31. The pharmaceutical composition as recited in claim 29 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

32. A pharmaceutical composition comprising a crosslinked amine polymer and a pharmaceutically acceptable carrier, wherein said polymer comprises an amine of formula II



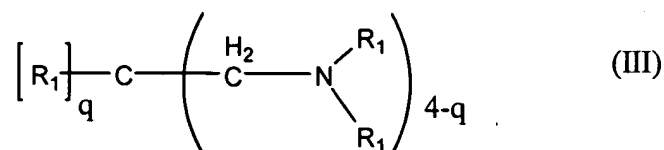
wherein p is 1, 2, 3, or 4, each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group, and R<sub>2</sub> and R<sub>3</sub>, each independently, are H or optionally substituted alkyl or aryl, with the proviso that when p=1, both R<sub>2</sub> and R<sub>3</sub> are not H and when p=2, 3, or 4 R<sub>2</sub> and R<sub>3</sub> are H, alkyl or -C(R<sub>1</sub>)<sub>2</sub>-R<sub>4</sub>-N(R<sub>1</sub>)<sub>2</sub>, R<sub>4</sub> being either a bond or methylene and said amine is crosslinked with a crosslinking agent.

33. The pharmaceutical composition as recited in claim 32 wherein said amine is at least one of:



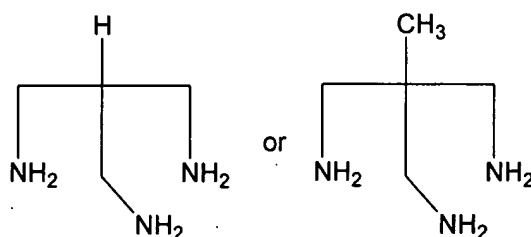
34. The pharmaceutical composition as recited in claim 32 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

35. A pharmaceutical composition comprising a crosslinked amine polymer and a pharmaceutically acceptable carrier, wherein said polymer comprises an amine of formula III



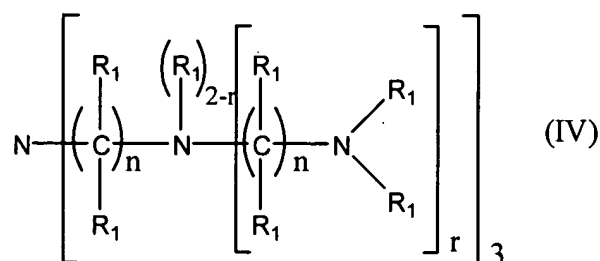
wherein q is 0, 1, or 2 and each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group and said amine is crosslinked with a crosslinking agent.

36. The pharmaceutical composition as recited in claim 35 wherein said amine is



37. The pharmaceutical composition as recited in claim 35 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

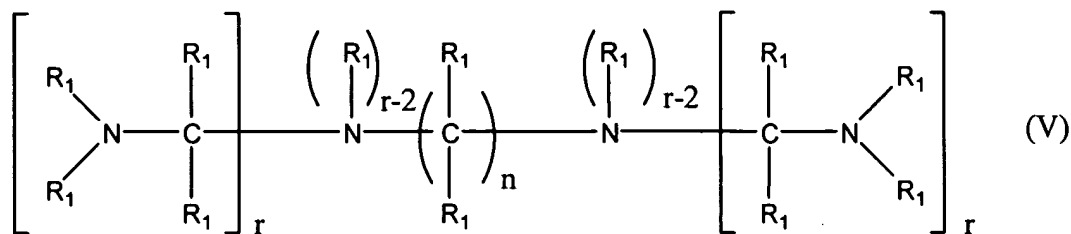
38. A pharmaceutical composition comprising a crosslinked amine polymer and a pharmaceutically acceptable carrier, wherein said polymer comprises an amine of formula IV



wherein each n, independently, is equal to or greater than 3; each r, independently, is 0, 1, or 2; and each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group and said amine is crosslinked with a crosslinking agent.

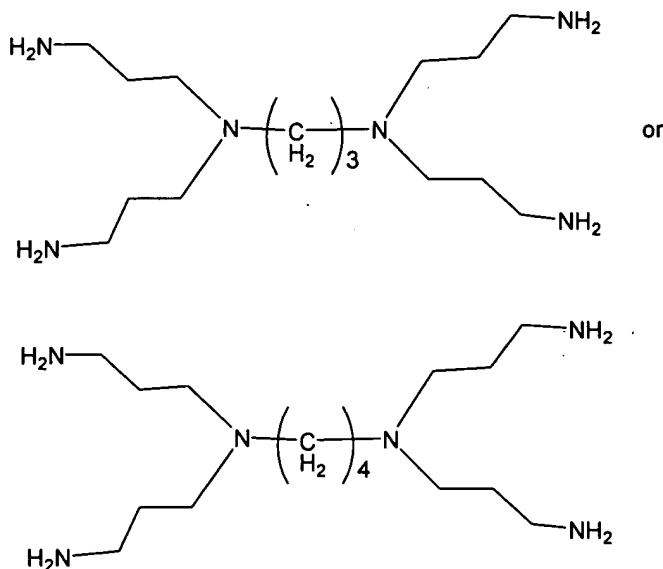


39. A pharmaceutical composition comprising a crosslinked amine polymer and a pharmaceutically acceptable carrier, wherein said polymer comprises an amine of formula V



wherein each n, independently, is equal to or greater than 3; each r, independently, is 0, 1, or 2; and each R<sub>1</sub>, independently, is H or optionally substituted alkyl or aryl or is linked to a neighboring R<sub>1</sub> to form an optionally substituted alicyclic, aromatic, or heterocyclic group and said amine is crosslinked with a crosslinking agent.

40. The pharmaceutical composition as recited in claim 39 wherein said amine is



41. The pharmaceutical composition as recited in claim 39 wherein said crosslinking agent is 1,3-dichloropropane or epichlorohydrin.

42. The pharmaceutical composition of claim 29, 32, 35, 38, or 39 wherein said composition is capable of removing phosphate from a gastrointestinal tract.

43. The pharmaceutical composition of claim 29, 32, 35, 38, or 39 wherein said composition produces a therapeutic and/or prophylactic benefit in an animal afflicted with a phosphate imbalance disorder.